ring 30 comes in contact with the inside of one of the four coupler guide walls 20, 22, 24 or 26, the double ring coupler 18 is guided along the inside of the coupler guide walls 20, 22, 24 and 26 which converge and guide the double ring coupler 18 into the spherical housing 6. Once engaged, the coupler pin 10 falls through the hole 8 in the spherical housing 6 and through the hole 46 of the inner ring 40. The inner ring 40 is then locked in place except that it may rotate in either direction about the vertical axis of the locking pin 10. Once so engaged and locked, FIG. 6 illustrates the operational association between the double ring hitch 18 and the coupler guide 16. With the locking pin 10 in place, the double ring hitch 18 is allowed to rotate three dimensionally about the inner ring 40 and within the spherical housing 6 continuously anywhere within the physical boundaries defined by the coupler guide walls 20, 22, 24 and 26. The relative shapes of the inner ring 40, the outer ring 30, and the spherical housing 6 provide a means by which the towed trailer has substantially more freedom of movement both vertically and horizontally relative to the towing vehicle than has been produced or allowed by any prior art.

What we claim is:

1. An improved trailer hitching apparatus comprising:

a plurality of connected guide walls or flanges which converge rearwardly into a substantially spherical housing having a substantially circular opening into said spherical housing where said guide walls converge;

means attached to said spherical housing for mounting said apparatus to a towing vehicle;

a double-ring coupler device having two substantially annulus-shaped rings, formed so that one outer ring houses the other inner ring as follows: the outer convex surface of said inner ring has the same curvature shape as the inner concave surface of said outer ring, with said outer ring somewhat overlapping said inner ring to hold them together operationally, allowing said outer ring to rotate freely on any axis about said inner ring;

a shaft attached to said outer ring having means to attach said coupler device to a trailer tongue;

said spherical housing having an inner surface with the same spherical curvature as the outer surface of said outer ring so that said outer ring can rotate freely and smoothly about any axis within said spherical housing;

said spherical housing having circular surface openings situated opposite each other and said inner ring of said coupler device having a circular hole which aligns with said surface openings as means for insertion of a locking pin device to securely engage said double-ring coupler device within said spherical housing.

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